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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,184	11/01/2006	Thomas Hofmann	R.305990	4929
2119	7590	11/27/2007		
RONALD E. GREIGG GREIGG & GREIGG P.L.L.C. 1423 POWHATAN STREET, UNIT ONE ALEXANDRIA, VA 22314			EXAMINER NGUYEN, TU MINH	
			ART UNIT 3748	PAPER NUMBER
			MAIL DATE 11/27/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/573,184	Applicant(s) HOFMANN ET AL.	
	Examiner Tu M. Nguyen	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>20060323</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. An Applicant's Preliminary Amendment filed on March 23, 2006 has been entered. Claims 1-12 have been canceled. Claims 13-32 have been added and are pending in this application.

Claim Objections

2. Claims 13, 17-21, 26-28, and 30-32 are objected to because of the following informalities:

- Claim 13, the claim is indefinite because of the use of the phrase "in particular".
- Claims 17-18, line 1 of each claim, "--at least one of--" should be inserted following "comprising". Line 2 of each claim, "and/or" should read --and--. Also on line 2 of each claim, "controls and/or regulates" should read --at least one of controls and regulates at least one of--. Line 4 of the claim, "and/or" should read --and--.

- Claims 19-21, line 1 of each claim, "--at least one of--" should be inserted following "wherein". Line 2 of each claim, "and/or" should read --and--.

- Claims 26-27, line 2 of each claim, "--at least one of--" should be inserted following "wherein". Line 3 of each claim, "and/or" should read --and--.

- Claim 28, line 1 of the claim, "--at least one of--" should be inserted following "include". Line 4 of the claim, "before and/or" should read --at least one of before and--. Line 5 of the

claim, --at least one of-- should be inserted following “converter,”. Also on line 5 of the claim, “and/or” (two occurrences) should read --and--.

- Claim 30 is identical to claim 29 and should be canceled.
- Claim 31, line 1 of the claim, “for a control and/or” should read --for at least one of a control and--.
- Claim 32, line 1 of the claim, “A control and/or” should read --At least one of a control and--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 13-24 and 26-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Peter-Hoblyn et al. (U.S. Patent 5,809,774).**

Re claim 13, as shown in Figure 1, Peter-Hoblyn et al. disclose an internal combustion engine (40) with fuel direct injection (fuel injectors (42)), having an exhaust treatment system for reducing pollutants in the exhaust, the exhaust treatment system comprising:

- a reservoir (10) containing an active ingredient (NO_x-reducing reagent),
- a delivery device (13, 23) for delivering the active ingredient,

- an injection device (valve (not numbered but clearly shown on line 32)) for injecting the active ingredient into the exhaust, and

- a pressure reservoir (30) that is fed by the delivery device (23), wherein the pressure reservoir being able to store the active ingredient under pressure and being directly connected to the injection device.

Re claim 14, in the engine of Peter-Hoblyn et al., the delivery device comprises a pre-supply pump (13) and a high pressure pump (23).

Re claims 15-16, the engine according to Peter-Hoblyn et al. further comprises a pressure regulating device (valve on line 34) connected to the pressure reservoir (30).

Re claims 17-18, the engine according to Peter-Hoblyn et al. further comprises at least one of a control and regulating device, which at least one of control and regulates at least one of the delivery capacity of the delivery device, the pressure in the pressure reservoir, the time at which the injection of the active ingredient occurs, and the duration of an injection of the active ingredient as a function of the operating state (engine load) of the internal combustion engine (see lines 37-60 of column 8).

Re claims 19-21, in the engine of Peter-Hoblyn et al., at least one of the delivery device (13, 23) and the pressure reservoir (30) are of the type used in direct-injecting, fuel systems (fuel injectors (42)).

Re claims 22-24, in the engine of Peter-Hoblyn et al., the active ingredient is urea (line 6 of column 7).

Re claims 26-27, Peter-Hoblyn et al. further disclose a method for operating said internal combustion engine, wherein at least one of the delivery capacity of the delivery device, the

pressure in the pressure reservoir, the time at which the injection of the active ingredient occurs, and the duration of the injection of the active ingredient depend on the current operating parameters (engine load) of the internal combustion engine (see lines 37-60 of column 8).

Re claim 28, in the method according to Peter-Hoblyn et al., the operating parameters include at least one of a torque of the engine, a temperature (temperature sensor (51)) before a catalytic converter (60), and an NOx content (NOx sensor (45)) in the exhaust.

Re claims 29-32, Peter-Hoblyn et al. further disclose a control unit, a computer program, and an electric storage medium of said internal combustion engine, operable to store said computer program to be used in the claimed method.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peter-Hoblyn et al. as applied to claim 22 above, in view of Goerigk et al. (U.S. Patent Application 2002/0023433).**

The engine of Peter-Hoblyn et al. discloses the invention as cited above, however, fails to disclose that the engine further comprises means to heat the pressure reservoir.

As shown in Figure 1, Goerigk et al. disclose a system for feeding a reducing agent into a catalyst device, comprising a urea solution tank (6), a reducing agent pump (7), and an injection valve (8). As indicated in paragraph 0048, Goerigk et al. teach that it is conventional in the art to heat the tank, pump, and valve to prevent freezing of the system. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teachings by Goerigk et al. in the engine of Peter-Hoblyn et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to allow the exhaust system to operate efficiently during period of low temperature.

Prior Art

7. The IDS (PTO-1449) filed on March 23, 2006 has been considered. An initialized copy is attached hereto.

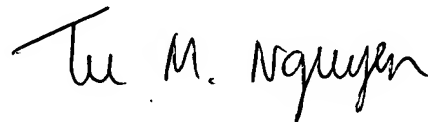
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of four patents: Hofmann et al. (U.S. Patent 5,809,774), Murphy et al. (U.S. Patent 6,122,909), Weisweiler (U.S. Patent 6,399,034), and Mikkelsen et al. (U.S. Patent 6,550,250) further disclose a state of the art.

Communication

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TMN

November 24, 2007

Tu M. Nguyen

Primary Examiner

Art Unit 3748